DOCUMENT RESUME

ED 158 543 EC 111 944

AUTHOR Mahler, Donald
TITLE Music for Learning.
PUB DATE Jun 78
NOTE 12p.; Paper presented at the World Congress on Future Special Education (First, Stirling, Scotland, June 25 - July 1, 1978)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Behavior Change; Cerebral Dominance; *Handicapped Children; *Learning Processes; *Music; Neurological Organization; Research Reviews (Publications); *Special Education; Teaching Methods

ABSTRACT

Background music has significant implications for the teaching-learning process in special education. Unobtrusive or background music is a powerful medium which can accentuate, maintain or attentuate overt behaviors in response to conscious sensory stimuli, and special educators could use music as a tool to increase the effectiveness and efficiency of the teaching learning process. Recent findings and theories in the area of left and right brain functioning appear to have the following implications for music and special education: (1) the musical bias is partially explained by the brain's sophisticated method of monitoring input; (2) the pattern analysis functioning of the brain may help explain why the rhythm component of music is so important; (3) with increased hemispherical differentiation and school left-brain emphasis, beginning music early and continuing it frequently is important; and (4) since music is basically a right-brain activity, it would be beneficial to abandon left-brain behavioral objectives. (BD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

- ED158543

MUSIC FOR LEARNING

Donald Mahler

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Professor of Special Education and Psychology
Humboldt State University
3111 Brian Court
Arcata, CA 95521

Presented at the First World Congress
on Future Special Education
Stirling, Scotland
June 25 - July 1, 1978

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

C.E.C.

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

EC111944

MUSIC FOR LEARNING

Donald Mahler

First World Congress Future Special Education

University of Stirling, Scotland

27 June 1978

I. Introductory Comments

Music serves an enormous range of functions in our daily lives; some are incidental and some are purposeful. And its impact is both conscious and unconscious. Indeed music, of one sort or another, has been described as one of the characteristics which separates man from other forms of life.

The application of music to deliberate behavioral change has received increased attention during the past 30 to 40 years, and in some aspects of special education (particularly music therapy) during the past 15 years. But it is not my intent to talk about music and special education as related to such topics as individual therapy, socialization, language development, motor development, or leisure time enrichment.

Rather, I'd like to make a few comments, and to offer a few suggestions for the purpose of stimulating interest about two topics related to music which I think have potentially significant implications for the teaching-learning process in special education. These two topics are: (1) background music and special education. Because the topics are not common to the special education field, general background comments are first offered, followed by a few implications.

II. Background Music and Special Education

For many persons from the U.S.A. the subject of background music immediately brings to mind the word MUZAK.[1] The word MUZAK has become so familiar that it is sometimes used as a generic term (rather than a corporate name). What is less well known is that the deliberate commercial use of programmed music by MUZAK goes back to 1934, and that today MUZAK operates directly, and through its franchise, in some 25 countries on 5 continents and is heard by more than 100 million persons every working day.

Regardless of our personal reactions to MUZAK, the evidence that it works is substantial over many years. Evidence includes not only increased worker efficiency and fatigue reduction, but also such things as improved psychological and physiological responses among hospital patients in intensive care units. While some precomposed music is employed, the overwhelming bulk of the selections are specially designed[2] and delivered based upon the documented responses of the human organism to four major variables, resulting in a stimulus value ranging from negative to positive.[2] To quote from a MUZAK publication[3]:

> "Since our purpose is not to entertain, we do not employ the music of radio or record. Ordinary music is specifically designed to entertain, and is therefore a planned distraction. It requires active listening and emotional involvement."
>
> "MUZAK arranges and records its own special type of non-distracting musical stimulus. It is heard but not listened to..."

---

[1]The MUZAK organization is the largest composer of music in the world.

[2]The variables are: (1) tempo, (2) rhythm, (3) instrumental groupings, and (4) number of instruments.

[3]MUZAK.....in Offices, p. 3, undated.

This aspect of programmed music, deliberately non-distracting and "heard but not listened to," appears to be one of the keys to its effectiveness and one we will come back to later. However, before doing so, there are a few other topics for comment.

Music has become an integral part of film making, both educational and entertainment films. The state-of-the-art has reached a high level with psychologists, composers, producers, editors, and marketing specialists all collaborating in developing appropriate scores. The data base for film music is perhaps more intuitive than for MUZAK but nontheless very extensive. It is the subject of books, trade and popular articles, and college courses. The goal in this instance (as in programmed music) again is to help manage behavior - more particularly heightened emotional responses. Sometimes the film viewer is fleetingly aware of the music - and on occasion it is deliberately obvious - but generally the music remains "heard but not listened to."

Both commercial background and film music can induce physiological changes, including a change in heart beat. Perhaps it is not accident that the most powerful variable in music's affect appears to be rhythm, and that all cultures in their own evolutions of indigenous music seem to have first developed rhythm instruments usually in the form of a drum.

Drums and other percussion instruments allow us to easily match rhythms with heart beats and to lead the receivers from there. (Military music is a familiar example of this. Of course we don't absolutely require the use of instruments - chants and lullabies are examples of how the human voice by itself can be effective in matching and leading.) In practice a host of other variables - social, emotional, physical, even

age - also have an impact in any given situation. But the rhythm element seems always to be important. It appears that in music, as in all teaching-learning efforts, we must begin where the learner is presently functioning (or close to it) if we are to minimize adversive reactions and rejection.

These foregoing comments are meant to indicate strongly that even unobtrusive music is a powerful medium of maintaining or changing a wide range of behaviors - emotional, physiological, and cognitive.

The specific manners in which music acts upon the human organism to generate its response has been and continues to be the subject for detailed investigations. I think all the specifics can be subsumed under a postulate I'll term musical bias. By bias is meant the loading or pre-condition of the organism in order to respond more effectively and efficiently to subsequent sensory input.[1] Put another way, background music can accentuate, maintain, or attenuate overt behaviors in response to conscious sensory stimuli. Further, music can do this relatively low cost via commonly used technologies.

The implications of musical bias for special education would seem to be very direct and substantial in increasing effectiveness and reducing costs. Special educators continue to devote prodigious amounts of energies - individually and collectively - to even more refined assessment techniques and to more precise teaching methodologies. The efforts are costly in terms of design, personnel training, and indirect pupil application. Such activities are basically frontal and undoubtedly should, and will, continue in the future.

---

[1]For those of you who are high-fidelity buffs and use tape recorders, the analogy is to the inaudible electrical signal applied to recording tape to facilitate the receipt of signals from audible sound.

What would be enormously valuable is a tool for increasing the effectiveness and efficiency of our teaching-learning process: in effect a positive bias technique. Music may indeed be such a technique, particularly for special education when used individually and in small groups. The power of music is well demonstrated in the adult world and it seems more than timely that special educators seriously explore the use of music as a bias for learning among children and youth.

To seriously explore such a use of music will first require an honest, open, willingness to consider what has and is being done in areas far removed from special education - including perhaps some negative bias. It will also require the long-term assistance of many specialists from other fields. If our desire is genuine, the human and fiscal resources available, in time we may identify an important "learning lever" for the future. And even if the results are less than the hope, the answers will never be known without the effort.

III. Brain Functioning, Music, and Special Education

Reports of interest in brain functioning after injuries, and efforts to identify localized areas responsible for particular functioning found in the U.S.A. and in Europe go back 100 years. Serious analytical studies of how the brain functions go back perhaps to the immediate post-WWII period, and attention to split-brain and left and right hemispheres beginning in the late 1950's and early 1960's. During the past three to five years, there has been an explosion of popular interest in the left and right brain functioning; we now have left and right brain personality studies, mate-matching, therapies, and on-and-on. Part of the interest

may be simply the usual American interest in new fads, our propensity for labeling everything human, or the lack of other current topics for the mass media to massage.

The field has generated strong opinions and conclusions which sometimes appear overly simplistic. To attempt to offer a comprehensive summary of findings and theories would be inappropriate and impossible. There are, however, some conclusions which have general acceptance and a few of these appear to have implications for music and special education. I'll mention four of these with some implication which occur to me (and doubtless you can add others):

1. The Brain is Watching

The brain is not a device which operates in a simple stimulus-response manner, nor according to other theories which see the brain as neutral to be filled and molded at will by outside forces. It is not passive but active in what it accepts and rejects for adding to its internal storage. It has a sophisticated method of monitoring and gatekeeping for input review and assignment for future functions.

It may be that the musical bias referred to earlier (in section II) is partly explained by gatekeeping - the brain accepts the stimulus as a pleasant past association, matches it with the current state of the organism, and if compatible, allows it to enter the system.

Further, what the brain will admit is largely dependent upon past associations related to the current input. Given the great variability in the range of experiences and success of special

education pupils, it would appear essential "to take nothing for granted" and rather to design musical activities related to particular types of learner problems and pay particular attention to each individual's musical experiences. This is basically a process of matching learner-task musical experiences.

2. Programs and Patterns

The brain sends information along by pulses; on-off signals much like a binary computor and uses the signals via programs. The brain can handle an incredible number of programs, sequentially and concurrently, by perceiving, learning and using patterns. One theory of brain functioning (Proster Theory) states that the brain groups programs for related purposes into clusters or prosters. Selection and use is based upon pattern analysis of incoming data compared with existing patterns and programs.

The brain seems to develop its patterns and programs most effectively via doing and experience (just as writers have been stating for over 2000 years!). For the learner this can include his/her talking as well as physical activities, but is little helped by instructor talking beyond the level of basic explanation and guidance. Talking may satisfy the teacher but effect little permanent learning.

The pattern analysis functioning of the brain may help explain why the rhythm component of music is so important - in production, in responding and in recall and association. Rhythm is extremely compatible with a major aspect of brain functioning. It also suggests

that emphasizing rhythm in musical programs - at least in the beginning stages - should maximize the probability of by-passing other handicaps and establishing positive associations. And, of course, don't talk about music - have the pupils do music!

3. Brain Splits

The brain of the infant and young child appears to be relatively indifferentiated in terms of hemispherical functions. The brain does recognize patterns of enormous visual and auditory complexity (e.g. syntax) as early as 1½-2 years of age and establishes appropriate functional programs.

Somewhere between the ages of 8 to 12 years, the brain seems to establish consistent differentiation for what might loosely be called linear, ordered, logical, symbol manipulation on one side (usually the left) and holistic, gestalt-type thinking on the other side. An extremely dichotomous description would be divergent versus convergent thinking.[1] Whether this differentiation is a natural consequence of physical maturation, culturally bound, or the brain's method of specializing to respond to different tasks more effectively and also avoid internal conflict, is not known. Probably all these factors and others are responsible.

Certainly we tend to respond personally in holistic ways but we encode our responses for transmission to others in linerar symbol systems. Society and school programs expect this and measure

---

[1]It is interesting to note that this is about the age of the development of Piagetian Formal Operations, and also about the age at which many gifted children exhibit a plateau or a decline in the rate of growth in ability to generate unusual approaches and/or solutions to problems.

achievement through left-brain type performance. And ability, or I.Q. tests, measure left-brain elements of global capacity.

One implication of the above comes to mind immediately. The natural musicality of young children is readily "shut off" with increased hemispherical differentiation and school left-brain emphasis. (How many times have we heard music educators state: "You've got to get them early!") If music is "worth doing," it is important to begin early and continue frequently and regularly into at least adolescence. This is especially appropriate for special education pupils who often are especially vulnerable to right-brain atrophy and left-brain academic failure.

4. Left is Not Right

The right hemisphere appears to be dominant for music scanning, for recognizing musical tunes and pitch, for graphic design, sculpture, color, spatial relationships, and the like. The left hemisphere seems to be responsible for using the tools which have been developed to analyze, describe, and manipulate music and art. Music is basically a right-brain activity, readily compatible with the brain in its natural state. But we intellectualize it to tatters, and we measure success according to fidelity to left-brain standards. The reasons are many and often valid.

However, for all those persons using music with exceptional pupils, it would seem essential to immediately throw out all left-brain behavioral objectives and seriously work on what is right for the right-brain.

For years many music educators have tried to do this but the pressures from the left have been nearly irresistible. Now that right help is available they should have new courage to resist.

IV. A Final Comment

Some school districts and states in the U.S. have used individual educational plans for some time and more will as the new federal legislation goes into effect. It is conceivable that future plans may eventually include music - music not as a performance objective but as a tool and a vehicle. To do so will require substantial long-term investments in time and energy from a variety of fields. But to even begin will probably require an expansion in the concepts of music by music educators, special educators, and administrators. If the conceptual hurdle is passed, and adequate time, money, personnel, and patience devoted to exploring the expanded potential of music, we may indeed discover an important "lever of learning."